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EDITORIAL.—It is very pleasant to receive the congratulatory letters of subscribers that are coming in faster than ever before. We have tried to make the GAZETTE attractive and useful to botanists, and of course it is gratifying to know that the effort has been successful. Such words only stimulate us to greater efforts, and it is our desire to make Vol. VI better than any before it.

THE FLORA OF INDIANA.—It is the intention of the editors of the GAZETTE to publish a catalogue of the Flora of Indiana. In this work they will be aided by Prof. Chas. Barnes of LaFayette. The catalogue will appear in the form of "extras" to the GAZETTE, and it will be completed within the year. A preface and title page will be published near the end of the year, thus enabling the patrons of the GAZETTE to bind their extras together in a neat pamphlet. It is earnestly desired that any botanist having knowledge of the plants of Indiana shall put himself in communication with the authors of this catalogue. Especially do we urge every botanist in the State to send us lists and specimens. All specimens will be carefully used and returned if desired, but in every case they must accompany lists before they can be considered authentic and included in the catalogue. Full credit will be given for all such help

A BOTANIST'S MARRIAGE.—It is not often that the GAZETTE feels called upon to notice a marriage, but this one is so botanical that its mention seems very appropriate. Prof. J. G. Lemmon, the well-known California botanist, was recently married to Sara A. Plummer, of Santa Barbara, another well-known botanist. The notice states that they will reside this winter in Oakland, and having united fortunes and herbaria, are ready to welcome their friends in their new herbarium rooms.

MR. HENRY M. DOUGLAS, of S. Richland, N. Y., is issuing a translation of A. de Bary's *Botanische Zeitung*. He asks one dollar for 10 numbers. The second issue will be from 1880.

MR. A. H. CURTISS intends to issue two more fascicles of United States plants before going to the West Indies; Fascicle IV the first of January, and Fascicle V next summer. This will correct a statement made in the last GAZETTE that Mr. Curtiss would probably issue but one more fascicle of U. S. Plants. He will spend the rest of the winter in South Florida, and will not distribute the second set of ferns till after his return.

NEW SPECIES OF PLANTS FROM NEW MEXICO.—DELPHINIUM SCAPOSUM.—Leaves all radical, rather fleshy, pubescent, 3-parted,

the divisions broadly cuneate, 3-5-cleft or toothed, the teeth ending in a callous point; scape smooth, racemose at summit; pedicels as long as the deep azure flowers; spur incurved; root a cluster of thickened, fleshy fibres.

Hill country between the Gila and San Francisco rivers, May 25, 1880. An interesting species, as combining the leafless stem of the scarlet flowered Californian *D. nudicaule*, with the deep blue flowers of *D. azureum*. I am informed by Dr. Gray that Prof. Newberry obtained what appears to be the same, south of Diamond River in Arizona.

DRABA MOGOLLONICA.—Hirsute pubescent with branching hairs; stem a foot high, sparingly branched, nearly leafless, except at base; leaves with a few large teeth, spatulate-oblong; racemes elongated in fruit; silicles oblong, as long as the pedicels (½ inch), twisted and tipped with a long (1½ line) style; flowers very large, yellow.

Northward slopes of the Mogollon Mountains, April 18, 1880. With the habit and pubescence of *D. cuneifolia*, but perennial, very large and showy; the mountain sides being yellow with it in its flowering season.

LEPIDIUM INTERMEDIUM, Gray, var. PUBESCENS.—Clothed with a dense roughish pubescence throughout; stouter, less branching, with longer racemes and larger silicles than the typical form; petals smaller or wanting.

Mangos Springs, May 31, 1880, in marshy gronnd, flowering two months later than the type which grows on the adjoining dry hills. Intermediate forms occur on the upper Gila.

RIBES PINETORUM.—Without prickles; subaxillary spines solitary (rarely 2-3) stout; glabrous except the peduncles and petioles which are minutely white-tomentose; leaves 5-cleft, lobes incised; peduncles very short, erect, mostly 1-flowered; calyx somewhat campanulate, pilose-tomentose, the lobes spatulate, reflexed, one third longer than the stamens and petals; style glabrous, undivided; stigmas two; berry large, armed with many stout prickles.

Bush 5 to 6 feet high, sparingly branched and few-flowered; the flowers large and reddish yellow Those of *R. leptanthum*, to which it is most related, are hardly half as large, and white (not "yellow," as said by Mr. Watson in Bot. King). The fruit is one of the largest and best flavored of our wild gooseberries.

In woods of *Pinus ponderosa*, in the higher elevations of the Pinos Altos and Mogollon Mountains, flowering in April; fruit ripe in September.

LITHOSPERMUM COBRENSE.—Stems a foot or two high, and usually several from the same root. Radical leaves linear-spatulate, two or three inches long, hirsute and more or less hispid with stinging hairs, the cauline much smaller, mostly linear and smoother; corolla pale yellow, with ample limb deeply 5-cleft, no crests in the throat, and glandular ring at base of the tube naked, or with a few short hairs; flowers apparently nearly sessile, but fruiting calyces distinctly pedicelled.

Doubtless all that has been called *L. canescens* from New Mexico and Arizona is of this species. According to Dr. Gray it is Wright's No. 1563, Coues and Palmer's 275, and Rothrock's 202 and 633. That it is distinct from *L. canescens*, is obvious at first sight of the living plant, by the conspicuous tuft of root leaves. The pale yellow, fragrant flowers are commonly as large as those of *L. hirtum*. I name the species in reference to that classical locality, Santa Rita del Cobre, where Mr. Wright collected it first, and where I first saw it in 1877.

LITHOSPERMUM VIRIDE.—Sparingly strigillose, and minutely appressed-pubescent; clustered stems simple, 1½ to 2½ feet high; leaves pinnately 3-5 ribbed; the cauline lanceolate or oblong-lanceolate, 1-3 inches long, passing into lanceolate bracts; pedicels 2-3 lines long; calyx parted to the base into linear lobes a half-inch long; the light-green corolla salver form, 10 lines long; its ample tube somewhat clavate, being manifestly contracted at the orifice, without crests, and the glandular ring nearly obsolete, limb of 5 small, rounded lobes reflexed against the tube; stamens inserted high in the throat; style exserted; nutlets contracted to a narrow base, the scar excavated and surrounded with a prominent margin.

Collected in the Mimbres Mountains, near Georgetown, in 1877, and on Swan Mountain, near Silver City, 1880; flowering from May to October. A singular member of the genus, having wholly the aspect of an *Onosmodium*, and nutlets suggestive of *Symphytum*.—EDWARD LEE GREENE.

NEW LOCALITIES FOR SOME FLORIDA PLANTS.—Two years ago, when botanizing on the Halifax river at Port Orange, I first saw that beautiful shrubby vine, *Chiococca racemosa*, Jacq., and fell in love with its racemes of snow-white berries and glossy dark-green leaves. This year a friend described to me a vine which she had transplanted unsuccessfully from Anastasia Island, across our harbor, to her garden, and I hoped it might prove to be the *Chiococca*. I looked for it there in June, but did not find it. However, in August, a more extended search proved to my great delight that it is well established upon the Island. It was too late then to secure specimens of the flowers, as the young fruit had all set. This plant seems to be according to situation indifferently a small shrub, or a high growing shrubby vine. As soon as I have another opportunity to visit this locality, I shall transplant roots to my garden, and see if I can have this thing of beauty always near by.

Cynoctonum ? scoparium, Chapm., is described in the Southern Flora as growing from "West Florida to Key West." Six years ago I found it near the old light-house on Anastasia Island, and it still flourishes there, climbing six or eight feet high over bushes and covering them with its masses of round green stems and small leaves. I also observed this *Cynoctonum* at Daytona, at Port Orange and in rich hummock lands on the banks of the Indian river; so I presume it can safely be ascribed to the east as well as the west coast of the State.

Mentzelia Floridana, Nutt., is not confined to the west coast. It is firmly established on Anastasia Island, and I have seen a few plants in a neglected spot here in town. I know, to my great annoyance, that it grew plentifully on Merritt's Island in the Indian River, because I heedlessly rambled about one day while botanizing and allowed my dress to become so covered with the old club-shaped hollow seed-vessels, leaves and bits of the brittle stems, that it required the active work of two friends during an entire hour to pick off the pests! The plant seems to be thoroughly armed with bristly barbed hairs, which are well adapted to promote the distribution of the seed vessels.

I saw a patch of flourishing *Iresine vermicularis*, Moquin., upon one of the banks of the Halifax river, and a few months since was pleased to find it establishing itself upon the banks of the Maria Sanchez creek in our town.

During the last three or four years I have occasionally seen *Kallstroemia maxima*, Torr. & Gray, as a very scarce weed in one or two places in cultivated grounds.

Avicennia oblongifolia, Nutt. is quite common on the shores of our inlet, and a *Pancratium* is commonly cultivated in our gardens, which I am sure must be the *Pancratium Caribaeum*, L., described by Dr. Chapman in the GAZETTE of March, 1878. It flourishes in cultivation, increasing quite rapidly, and the blossoms are large, very handsome and very fragrant.

Duranta Plumieri, Jacq , is an elegant shrub in our gardens noteworthy for its beautiful, golden, wax-like berries, which remain on the bush a long time. Of the genus *Utricularia* we have about here four described species, *U. inflata*, *U. purpurea*, *U. cornuta*, and *U. subulata*. In October, 1879, I found in muddy places in the pine-barrens several specimens of the smallest *Utricularia* that I have ever seen, and this year I have collected it again in several localities. Prof. A. Gray wrote me last year concerning it, "I have little doubt it is *U. simplex* of C. Wright, Cuba," and that he had no specimens like it. It grows in the same localities with *U. cornuta* and *U. subulata*. The scape is stouter than that of *subulata*, but the corolla is much smaller.

Last spring I saw in the garden of a friend, living about twenty miles south of us, a number of flourishing plants of *Abutilon pedunculare*, HBK. The seeds were brought from the Indian River country, where the plant grows wild. These plants were four or five feet high, and taking kindly to their new home, were rapidly propagating themselves.—MARY C. REYNOLDS, *St. Augustine, Fla.*

CROSS FERTILIZATION OF THE CHESTNUT TREE.—I would like to publish the following field notes, for their bearing on the vexed question of the Cross-Fertilization of the Chestnut Tree:

The first white settlers came to this county (Wabash) in 1803. They were undoubtedly disappointed in not finding the old and familiar chestnut of their eastern homes; and so on their first visit to

the east, did not fail to bring back with them at least a few chestnuts to plant. The cabins being few and far between, the seed in this way became tolerably evenly sprinkled over the whole county. Those of us who are germain to the soil have no fond recollections of the surroundings of an eastern home to cherish; consequently this importation stopped with the days of our sires. The result is that, scattered over the county at the sites of the earliest log-cabins, the chestnut tree has reared its head as a monument of the days when the white man and Indian contended for the right of possession.

I have been able to learn the history of 17 trees, and this is probably all to be found in the limits of the county. The following notes have been made either from personal observations or from persons who are thoroughly reliable and familiar with the history; and in some cases the very individuals were consulted who planted the seeds. I will commence at the west side of the county and pass eastward, taking the trees seriatim.

No. 1 was on the F. M. Rigg farm. It grew from seed from Virginia, and when it was cut down, several years since, it was over 18 inches in diameter, and bore an abundance of sterile burs, occasionally a few nuts being found, never more than three or four during a season. No tree of any size nearer than three miles while it was standing.

No. 2.—Mr. T. Rigg has a tree on his place which he has grown from seeds from No. 4. It bore three sterile crops of burs He then grafted on it two twigs taken from No. 3. The first year the grafts bloomed (they being about 18 inches long) and the tree bore about three pints of nuts. Most of them grew near the grafts, which were on opposite sides of the tree, but a few nuts were scattered in all parts of the tree top. Last spring the grafts did not bloom, and this fall the abundant crop of burs were all empty. Nearest tree is five miles away (No. 4).

No. 3 grew on the J. Beall lot, in Mt. Carmel. It was over 18 inches in diameter when it was blown down by the cyclone, June 4, 1876. It was grown from the same lot of seed as Nos. 4 and 7. For years it yielded abundant crops of burs, but not a chestnut was ever found under it, so far as I can learn. Nearest tree two miles (No. 7).

No. 4 is a group of seven thrifty trees growing on the Wm. Davis farm, from seeds from Ohio, planted forty one years since—the same lot as those that grew Nos. 3 and 7. They measure in circumference, two feet from the ground, 37, 37, 49, 55 and 71 inches, and are near one hundred feet high. (A pear tree near by, planted at the same time, is 80 inches in circumference.) All bear in abundance, and it is very seldom that a sterile bur is found. These trees are one mile from No. 5.

No. 5 is a thrifty tree on A. Woods' farm, and is from fruit from No. 4. It is near thirty years old and bears more or less chestnuts every year, but the crop of empty burs invariably exceeds that of the filled. Is one mile from No. 4, in a northwestern direction.

No. 6 grew on the J. Woods' farm, and was one-half mile north-

west of No. 5. It was blown down last winter. It grew from seeds from Kentucky, planted 54 years since. It was known to bear fruit only one year, and that was eight years since; then only a few nuts. It will be observed that Nos. 4, 5, and 6 are in a line and nearer together than any of the others, being only 1½ miles apart at the extremes.

No. 7 is a thrifty tree growing on M. Reel's farm. It is from the same lot of seeds as Nos. 3 and 4. Is forty-five in hes in circumference, and annually bears a large crop of empty burs. On occasional years a few nuts have been found, never more than four or five. It is two miles from No. 3, and the same distance from No. 4.

No. 8 is a group of three trees, all standing within a few rods of one another, on J. Hurshey's place. They are from seeds from Ohio, planted by him in 1848, and are near one foot in diameter. Have borne chestnuts in abundance for more than twenty years, without one year of failure. These trees are 1¼ miles from No. 9.

No. 9 is a group of two trees standing near together on the J. Sitherland farm, grown from seeds which he planted thirty-five years since. Both bear fruit freely. "The burs are always full." They are 1¼ miles from No. 8. One tree is much smaller than the other, and is always fuller of nuts. The seeds were obtained from Perry county, Ind., which is about 70 miles away in a direct line, and if it is native there, is the nearest station of which I have any knowledge. These trees are 1¼ miles from No. 8. (The chestnut is native in both Perry and Spencer counties, Ind.)

No. 10 is a tree, from seed planted by J. Hoff, on his farm, 34 years since. It is four miles from No. 9, and annually bears a large crop of burs, but never has a chestnut been found under it.

The foregoing observations point to the following conclusions, though they cannot be considered as positive demonstrations:

(1) That in some cases the chestnut tree appears to be sparingly self-fertilizing, while in others it appears to be sterile for a long succession of years.. See Nos 1, 3, 7 and 10

(2) That trees grown from the seed of one tree, freely fertilize one another. See Nos. 4, 8 and 9.

(3) That a sterile tree, growing grafts from another sterile tree, becomes fertile when the grafts bloom, and sterile when they fail to bloom. No. 2.—J. SCHNECK, *Mt. Carmel, Ill.*

QUEER PLACES FOR FERNS.—I think I may claim a *new locality* for a common fern. While recently exploring an extensive live-oak hummock, I came to a lofty pine-tree, *Pinus australis*, I think, which had had a large notch cut in it, about three feet from the ground. Upon the base of this notch, with its roootstock firmly fastened to the tree by the exuding pitch, grew a brave little upstart of a *Woodwardia Virginica*, Willd., its three or four six inch-long fronds healthy even though dwarfed, and two of them well fruited. Several of the pinnæ had been glued fast to the side of the tree by a thin film of the pitch. Two years ago I saw large, handsomely-fruited fronds of the *Polypo-*

dium aureum, L., which grew in the same hummock. Upon investigation, I was surprised to find that they grew upon a live-oak tree. Except in one instance, where a single plant of this fern grew inside a hollow burned stump of some swamp tree, I had never seen or known that *P. aureum* would grow on any tree but the Palmetto, except where in two or three cases, roots had been transplanted to congenial homes on the trunks of cultivated date-trees here in town. One of the trunks of this live oak had been cut down, and upon this cut place, where the wood was softer from consequent decay, the fern had obtained a resting-place and had gone vigorously to work. This fall I visited the tree again, and the fern was flourishing finely. Further search in the woods rewarded me by showing me a second fern growing on another live oak tree under the same conditions, and I obtained good specimens from both trees. A fact which added much to the interest of finding the *aureums* in these unexpected places is that there are no large Cabbage Palmetto trees in the vicinity from which the fern could have been transferred, and the fern itself is also very scarce in this region.

P. incanum on the trees, and *Osmunda cinnamomea* on the ground, are the other representatives of the fern family in the same hummock. The *O. cinnamomea* is very common everywhere beside the "branches," and has been bearing an abundance of fruited fronds during the past two months.

Polypodium incanum is by no means particular as to its habits, growing on live-oaks, hickory and cedar trees. — MARY C. REYNOLDS, *St. Augustine, Fla.*

CARNIVOROUS PLANTS. II. — EXPERIMENT No. 2. — An ant was placed upon a leaf near the center of the disk, at 2 o'clock, June 4th, 1879. —

15 min. no change.
30 " the submarginal tentacles (reflexed at first) now nearly at right angles to the blade.
90 " only a slight change.
4 hrs. marginal tentacles moving slightly.
18 " the submarginal tentacles nearest the specimen much inflected, but as yet do not touch it. The marginal tentacles had moved only slightly from last note.
38 " submarginal and central tentacles inflected, but only the latter touching the specimen.
48 " about the same as the last.
66 " a slight reflexing is apparent.
73 " tentacles reflexing.
117 " tentacles nearly all reflexed except a few of the central ones.
144 " change only slight.
157 " some of the submarginal and a few central tentacles have again inflected, but for what reason, I cannot tell. *With a lens I could see no other animal or exciting substance of any kind upon the leaf!*

166 hrs. leaf nearly open; tentacles with no secretion and apparently dried.
216 " all the marginal and submarginal tentacles reflexed and those of the disk nearly so. No secretion.
233 " the leaf had assumed nearly its natural position and shape.
240 " all tentacles that were inflected are reflexing rapidly.
279 " all reflexed except the disk tentacles.
327 " completely expanded except disk tentacles on one side.
361 " some more reflex action.
409 " all expanded but one or two.
529 " completely reflexed; leaf with high color; no secretion.
601 " leaf natural; no secretion.
769 " leaf natural and with secretion.

EXPERIMENT No. 3.—A smaller piece of living angle worm than in No. 1, was placed near the center of the leaf at 2 p. m., June 4, 1879.—

15 min. no change.
30 " no perceptible change.
45 " submarginal tentacles slightly inflected.
90 " submarginal tentacles somewhat more inflected.
18 hrs. submarginal tentacles nearly all inflected and some touching the specimen; marginal tentacles moving.
24 " some change in the marginal tentacles from the last.
38 " some of the submarginal tentacles touch the specimen; marginal tentacles about the same as before.
73 " central tentacles still touching the specimen; marginal tentacles reflexing.
117 " submarginal and central tentacles still inflected and touching the specimen; marginal tentacles all reflexed; substance on the leaf dried
123 " many of the submarginal tentacles are reflexed.
144 " a few of the submarginal and all the central tentacles touching the specimen.
166 " about the same as the last, except that all the tentacles already reflexed are dried.
216 " the whole leaf has assumed its natural position, except the disk tentacles; no secretion.
233 " disk tentacles nearly reflexed.
303 " only a few disk tentacles at all inflected.
327 " completely expanded, except disk tentacles mentioned last.
361 " no further change except that the glands of the submarginal tentacles are covered with a white mold.
457 " same as the last; mold present also upon the marginal tentacles, which is gray in color.
490 " leaf with some color; no secretion; completely covered with a thin net work of mold.
529 " leaf apparently dead; color a dark-brown; mold disappearing.

601 hrs. leaf completely dried.*

EXPERIMENT No. 4.—A piece of wood was placed on the center of a leaf at 2 p. m., June 6th, 1879.—

60 min. no change.
75 " slight inflection of the submarginal tentacles.
18 hrs. most of the submarginal and central tentacles were inflecting slowly.
24 " there was hardly any change from the last.
38 " the submarginal tentacles had passed through an angle of about 45 degrees; no change in the marginal tentacles; no secretion.
73 " all the tentacles were reflexed and natural.
144 " for some reason the leaf seems to show some signs of dying.
175 " leaf with secretion on the tentacles.
185 " leaf perfectly natural.

EXPERIMENT No. 5.—Placed upon a leaf a minute larva of *Haltica chalytea* (about ⅛ inch long), at 8 a. m., June 6th, 1879.—

30 min. all of the central tentacles were bent so as to touch the specimen.
60 " the submarginal tentacles had passed through an angle of 45 degrees.
4 hrs. all of the submarginal tentacles were inflexed and many of them touched the specimen.
10 " nearly all the tentacles were inflexed, but only the submarginal and central ones touched the specimen.
22 " the tentacles showed signs of expanding.
29 " the edges of the leaf, submarginal, marginal and disk tentacles on one side inflected over the specimen.
67 " simply the submarginal and marginal tentacles nearest the specimen inflected and touching it.
73 " nearly all reflexed.
94 " all reflexed.
171 " leaf with secretion on the tentacles.
178 " perfectly natural.

A REFORMED SYSTEM OF TERMINOLOGY IN CRYPTOGAMS.—A paper was read lately before the British Association which suggests a very simple system of terminology for the reproductive organs in Cryptogams. The authors are A. W. Bennett and George Murray. An abstract of it is given in the Journal of Botany for November.

In the first place, a spore is defined as "*any cell produced by ordinary process of vegetation* (and not by a union of sexual elements) *which becomes detached for the purpose of direct vegetative reproduction.*" It may be the result of ordinary cell-division or of free cell-formation.

In the terminology of the male fecundating organs very little change is necessary. The cell or more complicated structure in which

*The molds mentioned in this experiment and in No. 1 seem to be peculiar to this plant. I have carefully examined them, and will describe them further on in a future article.

the male element is found is uniformly termed an *antheridium*; the ciliated fecundating bodies are termed *antherozoids*, those destitute of vibratile cilia *pollinoids*.

For the unfertilized female protoplasmic mass, it is proposed to retain the term *oosphere* and to establish from it a corresponding series of terms ending in *sphere*. The authors propose the syllable *sperm* as the basis of the various terms applied to all those bodies which are the immediate result of impregnation. The entire female organ before fertilization, whether unicellular or multicellular, is designated by a set of terms ending in *gonium*.

The following table exhibits concisely the proposed system in the different classes of Cryptogams:

I. ZYGOSPERMEÆ. *Zygogonium* containing *Zygosphere*, fertilized *Zygosperm*.

II. OOSPERMEÆ. Male organ, *Antheridium* containing *Antherozoids* or *Pollinoids*.

Female organ, *Oogonium*, containing *Oosphere*, fertilized *Oosperm*.

III. CARPOSPERMEÆ. Male organ, *Antheridium* containing *Antherozoids* or *Pollinoids*.

Female organ, *Carpogonium* containing *Carposphere*, fertilized *Carposperm*.

IV. CORMOPHYTA. Male organ, *Antheridium*, containing *Antherozoids*.

Female organ, *Archegonium* containing *Archesphere*, fertilized *Archesperm*.

In the CARPOPHYCEÆ the process is complicated, being effected by means of a special female organ which may be called the *trichogonium*; the ultimate result of impregnation is a mass of tissue known as the *cystocarp*, within which are produced the germinating bodies which must be designated *carpospores*. Any one of these impregnated bodies which remains in a dormant condition for a time before germinating is a *hypnosperm*.

In the *Basidiomycetes*, *Ascomycetes* and some other classes, it is proposed to substitute the term *fructification* for "receptacle" for the entire non-sexual generation which bears the spores.—A. P. MORGAN.

NEW SPECIES OF FUNGI FOUND IN MARYLAND.—AGARICUS (TRICHOLOMA) CELLARIS.—Pileus convex, obtuse, then expanded, fleshy in the center, thin at the margin, silky, smooth, dry, white, more or less stained with umber at the disk; margin sometimes flexuous; lamellæ white, close but not crowded, adnexed, narrow, forked; stipe white, smooth, stuffed with cottony threads, equal, variously branched; spores white, .00024 by .0003 inches; odor and taste pleasant.

Plant five or six inches high, pileus three or four inches broad, stipe one inch thick; cæspitose.

I found this plant in Baltimore, on the fourth of October, growing on a brick wall in a dark cellar. The entire bunch measured more than one-half yard in diameter, and contained twenty-three pilei.

AGARICUS (TRICHOLOMA) BROWNEI.—Pileus convex, then plane, dry, fleshy, densely furfuraceous, ochraceous-brown, looking like soft kid or leather after the bran-like particles fall off; margin striate all the way round, then only at intervals, flesh white, solid, unchanging; lamellæ adnate, forked, not distant, at first pale yellow turning darker in age; stipe hollow or stuffed, squamose, bulbous, penetrating deeply into the earth by a fusiform root; spores white, globose, .00032 inches in diameter; taste slightly saline, but not disagreeable.

Plant ten inches high, pileus seven or eight inches broad, stipe eight lines thick.

In woods near Baltimore, July and August.

It gives me pleasure to dedicate this remarkably beautiful Agaric to its discoverer, Mr. Wm. Hand Browne.

RUSSULA CINNAMOMEA.—Pileus dry, fleshy, centrally depressed, cinnamon color, rimoso-squamose, flesh dry, spongy, tinged with ochre; lamellæ concolorous, narrow, forked, close, sinuate near the margin; stipe regular, smooth, pallid, blunt, at first stuffed, then hollow; spores globose, .00032 inches in diameter; taste acrid.

Plant two or three inches high, pileus four to six inches broad, stipe one inch thick.

In woods near Baltimore, June and July.

RUSSULA VARIATA.—Pileus at first globose, then expanded and centrally depressed, smooth, viscid, variable in color and even variegated, brownish or pinkish-purple, with at times a cast of green, epidermis peels easily, the extreme under margin edged with a delicate line of purple, flesh white, unchanging; lamellæ white, adnexed, narrow, forked, close; stipe white, smooth, more or less tapering at the base, spongy within; spores white, echinulate, .0003 by .0003 inches; taste acrid.

Plant nearly two inches high, pileus three or four inches broad, stipe nine lines thick.

In woods near Baltimore, July.—M. E. BANNING.

BACTERIA THE CAUSE OF BLIGHT.—Recently the writer had the pleasure of hearing a lecture by Prof. T. J. Burrill, Botanist of the Illinois State Board of Agriculture, in which he gave some results of his recent investigations into the cause of Pear Blight. In diseased trees he found the cell sap swarming with *bacteria*, multiplying usually at the expense of the starch contents, accompanied of course by an evolution of CO_2. To test the matter Prof. Burrill inoculated several healthy trees by means of an inoculating needle and in the great majority of cases, within 7 or 8 days the subject would begin to show signs of the Blight.

RECENT PUBLICATIONS.—*The American Journal of Science.*—The December number is mostly made up of a General Index to Vols. XI–XX of the Third Series. During Dr. Gray's absence the Botanical department is conspicuous by its absence.

The American Naturalist.—In the December number the depart-

ment of Botany appears under the editorial management of Prof. C. E. Bessey. The editors of the Naturalist could not have selected more wisely, and we congratulate them upon securing the services of one who will put new and vigorous life into a department too long neglected. A dispermous acorn is described and figured by Prof. Bailey.

Bulletin of the Torrey Botanical Club.—In the November number a *Laminaria*, new to the U. S., is described. Mr. W. R. Gerard describes and figures a viviparous specimen of *Phleum pratense.*

The American Microscopical Journal.—This journal announces a change of type for 1881, which will allow it to put more matter in the same space. We are glad to learn that the editor was so successful during the past year as to encourage him to continue the publication of so valuable a periodical.

The Gardener's Monthly and Horticulturist.—We always turn over the pages of this magazine with the wonder how any one in this country interested in Horticulture can get along without it. It is crowded so full of seasonable hints, editorial notes, science and travel, reports from societies, and first class advertisements, that it is a perfect mine of information to the gardener and horticulturist.

Case's Botanical Index.—This claims to be the cheapest horticultural paper in the world For 50 cents a year it is mailed to subscribers quarterly. It is handsomely printed and illustrated and gives much that is of interest to all classes of botanists.

Vick's Illustrated Monthly Magazine.—The December number contains a very handsome frontespiece, giving on a blue background a picture of a plume of Pampas grass. For hints as to decoration of house or lawn, we know nothing better than this magazine. Many a dreary yard has been beautified by following the simple directions given by Mr. Vick.

The Floras of Cincinnati.—Mr. Davis L. James gives us in this pamphlet a sketch of the Floras of Cincinnati published from 1815 to 1879. It seems that in this time four floras have been published. Mr. Joseph F. James' is the most recent one, and in the present pamphlet quite a number of additions and corrections are made to it. The additions consist of 19 new species and 16 new identifications, principally the work of Mr. C. G. Lloyd, Curator of Botany in the Cincinnati Society of Natural History.

Sexual Variation in Castanea Americana.—This paper, by Mr. Isaac C. Martindale, is a reprint from the last *Proc. Phil. Acad.* It describes among other things a case in which male flowers had become female and produced an abundance of burs. It is sometimes argued that want of nutrition produces such a result, but this Mr. Martindale does not accept.

Erie Natural History Society.—A neat pamphlet of about 30 pages comes to hand, bearing the above title. A glance through its pages shows the President of the society to be a good botanist, G. Guttenberg A history of the society is given and some of its papers published, among which is a very interesting one from Mr. Guttenberg upon the "Poisonous Plants which grow in and around Erie."